



MEC-E3020

METHODS IN EARLY PRODUCT DEVELOPMENT

A”

Aalto University
Design Factory

We start at 15.15 !

**Find your group
and sit with them!**

Sessions

Wednesday 23.10. 15-17

Introduction to product development processes and course practicalities

Wednesday 30.10. 15-17 *shared session with PDP
Needfinding

Wednesday 6.11. 15-17 *shared session with PDP
Value mapping, Visiting lecture from [Ville Eloranta](#)

Wednesday 13.11. 15-17
Problem framing

Wednesday 20.11. 15-17 *shared session with PDP
Ideation

Wednesday 27.11. 15-17 *shared session with PDP
Concepts and Patents, Visiting lecture on patents from [the Finnish Patent and Registration Office \(PRH\)](#)



Today's session

Creativity and ideation theory

Creativity methods, and trying them out

How to facilitate creative sessions



Last time...

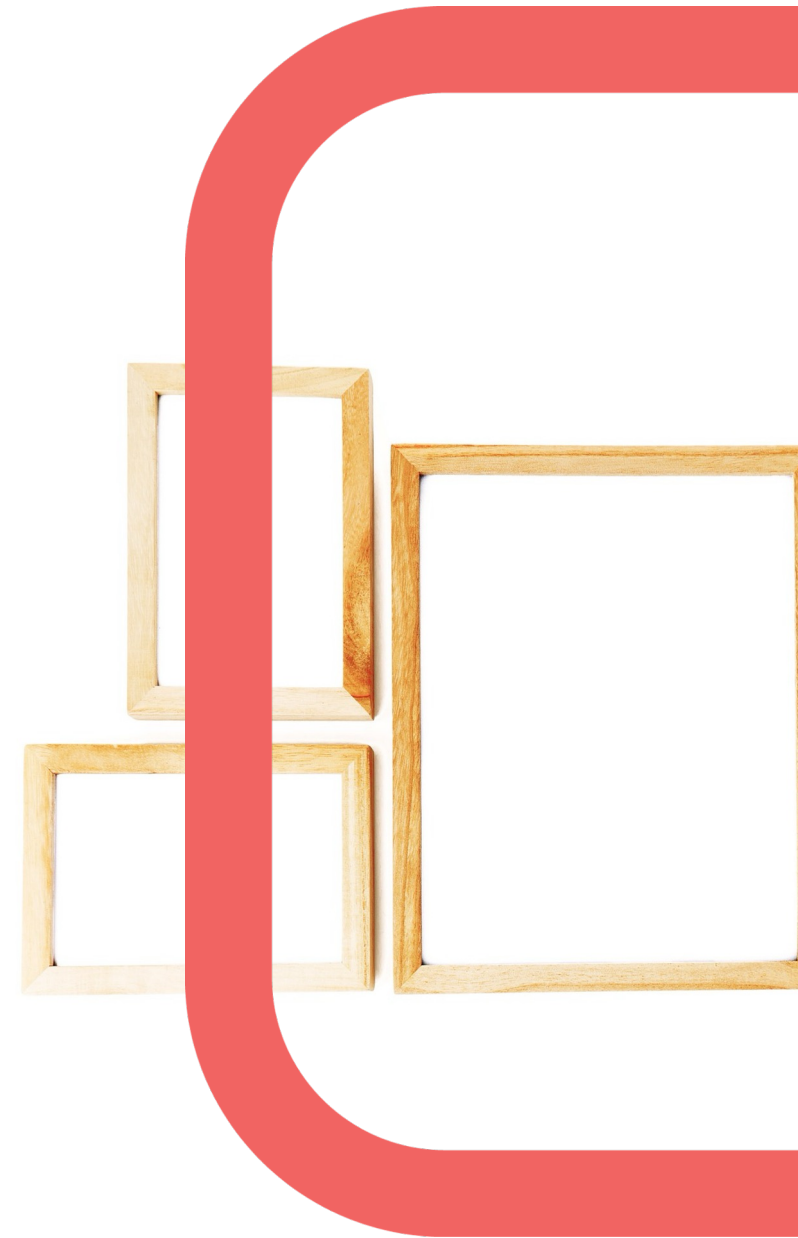
How might we.. so that .. can..?

An actionable scope

Does the question allow for a variety of solutions?
Does it provide a narrow enough scope to get started?

Reasonable assumptions

Are the assumptions made in the question clear?
Are the assumptions made in the question true?





IDEA GENERATION BASICS

*What is most important when
generating ideas?*

<https://presemio.aalto.fi/methods5>

What sparks creativity?

Creative thinking **can be practiced** (e.g. Bruton, 2011)

Creativity is a combo of three components; **intrinsic motivation, expertise** and **creative thinking skills** (the way of approaching problems). (Amabile, 1998)

also

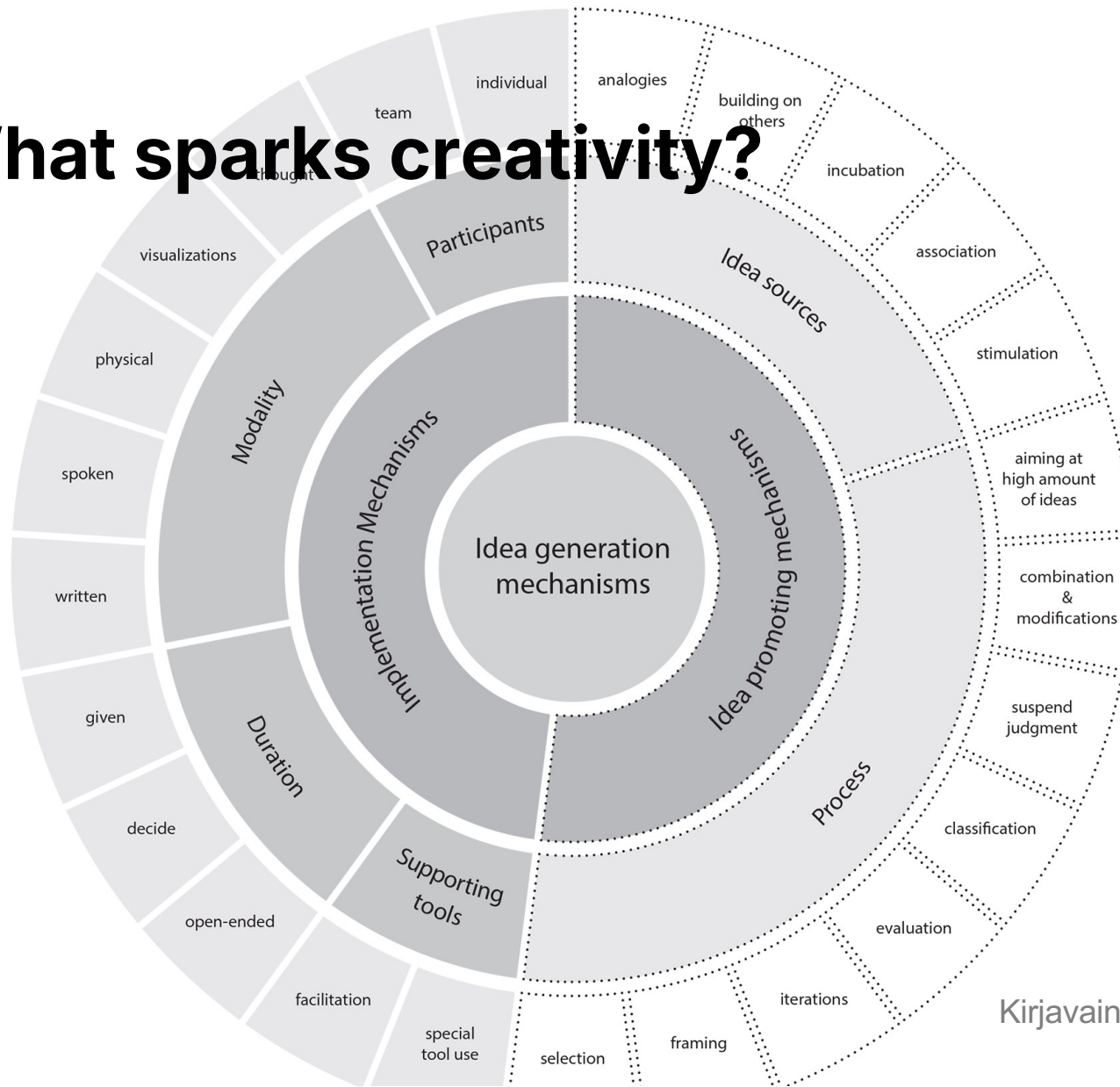
Creativity consists of **flexibility**, is **reactive and proactive, contributes to change**, and therefore it underlies problem solving and problem finding. (Runco, 2004)

Creativity can be supported in various ways and various levels, for example:

Methodology for ideation

Organizational support and organizational culture

What sparks creativity?



Role of biases

Cognitive biases can affect ideation...

Projection Bias - leads to overestimating the similarity between current and future experiences

Egocentric Empathy Gap - results in assuming others share the same values or preferences as you

Hypothesis Confirmation Bias - leads one to favor information that supports preferred views

Availability Bias - results in favoring familiar, often incremental, information and solutions over unknown, novel ones.

(Liedtka (2015))



Idea generation methodology

Hundreds of methods that promote divergent, creative thinking.

Aim is to create multiple solution possibilities to choose from, to combine, to discuss, and to prototype and test.

Different types of methods, some are structured, some more freeform.

There are different mechanisms that work as cognitive support



Ideation session goals - idea perspective

Quality through quantity!

Sharing and creating new and surprising combinations

Pushing the boundaries – you can always come down to earth



Ideation session goals - human perspective

Building shared understanding

Building commitment and excitement

Building trust

Getting people on board

Bringing in various perspectives

+

In-person ideation supports creativity better than online interaction. (Brucks and Levav, 2022)



A group of people are gathered around a table in a workshop or classroom setting, focused on a project. The scene is dimly lit, with the primary light source coming from the left, creating a moody atmosphere. The people are engaged in various activities: some are looking at a laptop, others are handling components on the table, and one person is using a hot glue gun. The table is cluttered with tools, papers, and electronic components. In the background, other people can be seen working at their own tables, suggesting a collaborative environment. The overall tone is professional and creative.

Insight = A Problem Worth Solving + Why?

Proactively reframing design briefs; Björklund 2013

First, ideation needs a question

How might we

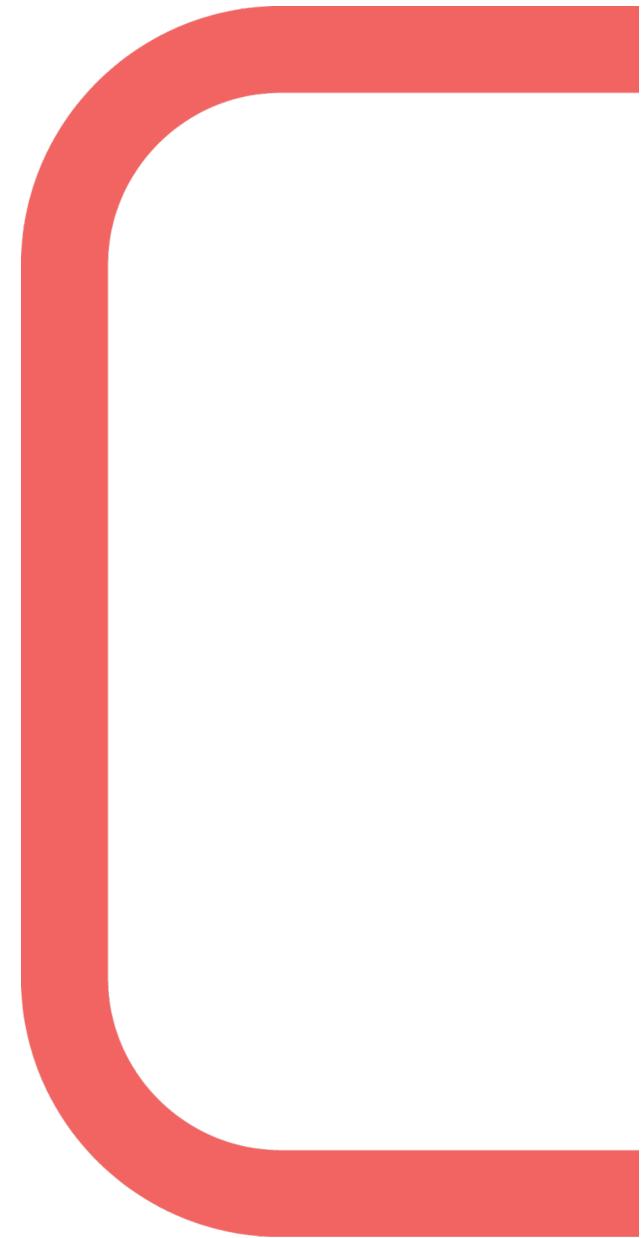
[what: goal]

so that

[who: stakeholder]


can

[why: need/insight]





IDEA GENERATION METHODS



Groups that do not employ a specific process methodology to guide their efforts are significantly less effective at engaging in divergent thinking and in producing creative solutions .

Puccio et al., 2018

Wishing

Starting sentences with "I wish..." or "Wouldn't it be nice if..."

Helps vocalizing statements and futures that might otherwise feel to out there.

Wishing engages fantasy and unreal thinking, encouraging people to think outside the box.

As a method wishing is quick, intuitive, and works well as a warm up.



Task:

1. Pair up

2. Use the next five minutes to ideate using wishing.

3. Take turns to voice out ideals.

4. Prepare to share thoughts!

"I wish the process could be done unmanned"

"Wouldn't it be nice if the service would be available in any language"

Brainstorming

1. Go for quantity (Quantity brings quality!)
2. Hold back criticism: (even if an idea feels absurd, false, embarrassing, stupid, well-known or redundant)
3. Let loose and welcome unusual ideas
4. Build on other's ideas and combine them
5. Write, sketch, or record ideas down
6. Try to be concrete to allow added specificity
7. End after 30 to 45 minutes

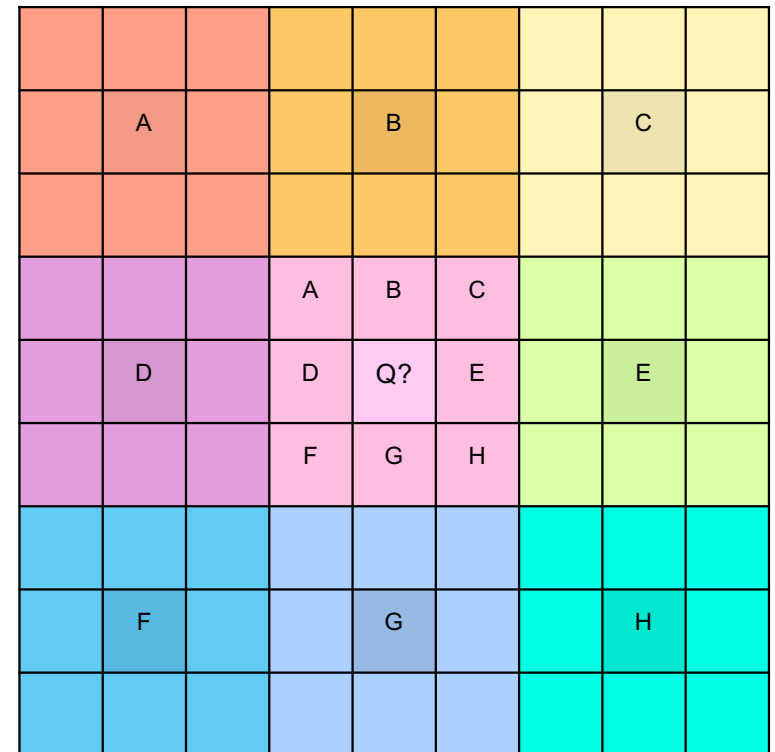
Lotus Blossom

A systematic way to generate plenty of ideas in a short period of time.

Question or problem statement goes in the middle

Generate eight ideas around it

Use all eight ideas as a new starting point for ideation in the surrounding squares.



Negative Brainstorming

Why?

Removes the pressure to come up with good ideas

Can lead to more novel ideas when the bad ideas are turned to positives

A good way to kick-off ideation particularly when everyone does not know one another well

How?

Turn the design challenge to a negative one

How to create a service no one wants to use?

How could we create partnering criteria which prevent all R&D collaboration?

Generate ideas freely for a short period of time

Finish by trying to turn negative ideas into their positive opposites

635 Brainwriting

Why?

A method combining individual and group input.

Allows everyone to be heard without group pressure – great when there are large power differences or dominating personalities.

Rotation allows improving the ideas.

How?

1. For 5 minutes, add ideas on post-its to the first round space.
2. Pass the paper clockwise.
3. Read the ideas on the piece of paper you received. Grab 3 more post-its, add them to the sheet and write/draw a new or elaborated idea to each.
4. Repeat until you get your own starting paper back



Task:

1. Go to Miro and find your preassigned group space.
2. Select one of the two HMW-challenges.
3. Follow the instructions and ideate.

<https://tinyurl.com/bdz4vp86>

A photograph of a blue sneaker with white laces tied to a yellow and blue robot on a grassy field. A red and white striped caution tape is in the foreground. The text "MAKING SENSE OF IDEATION" is overlaid in white.

MAKING SENSE OF IDEATION

After ideation

Convergence

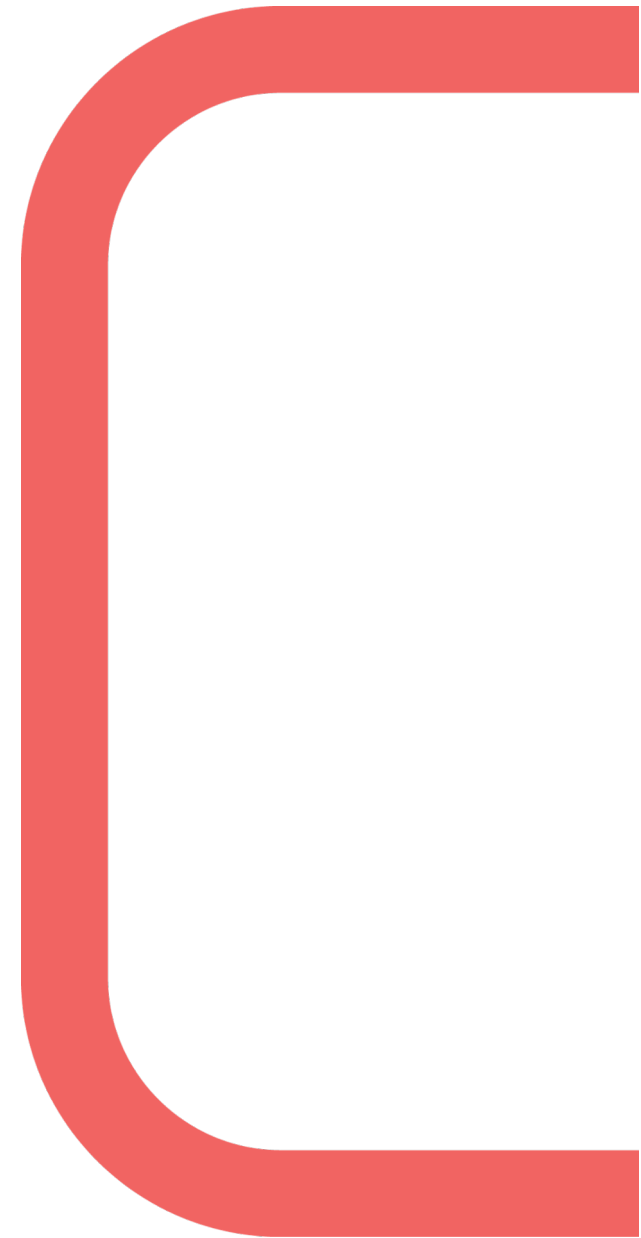
Options for further exploration

Using evaluation methods

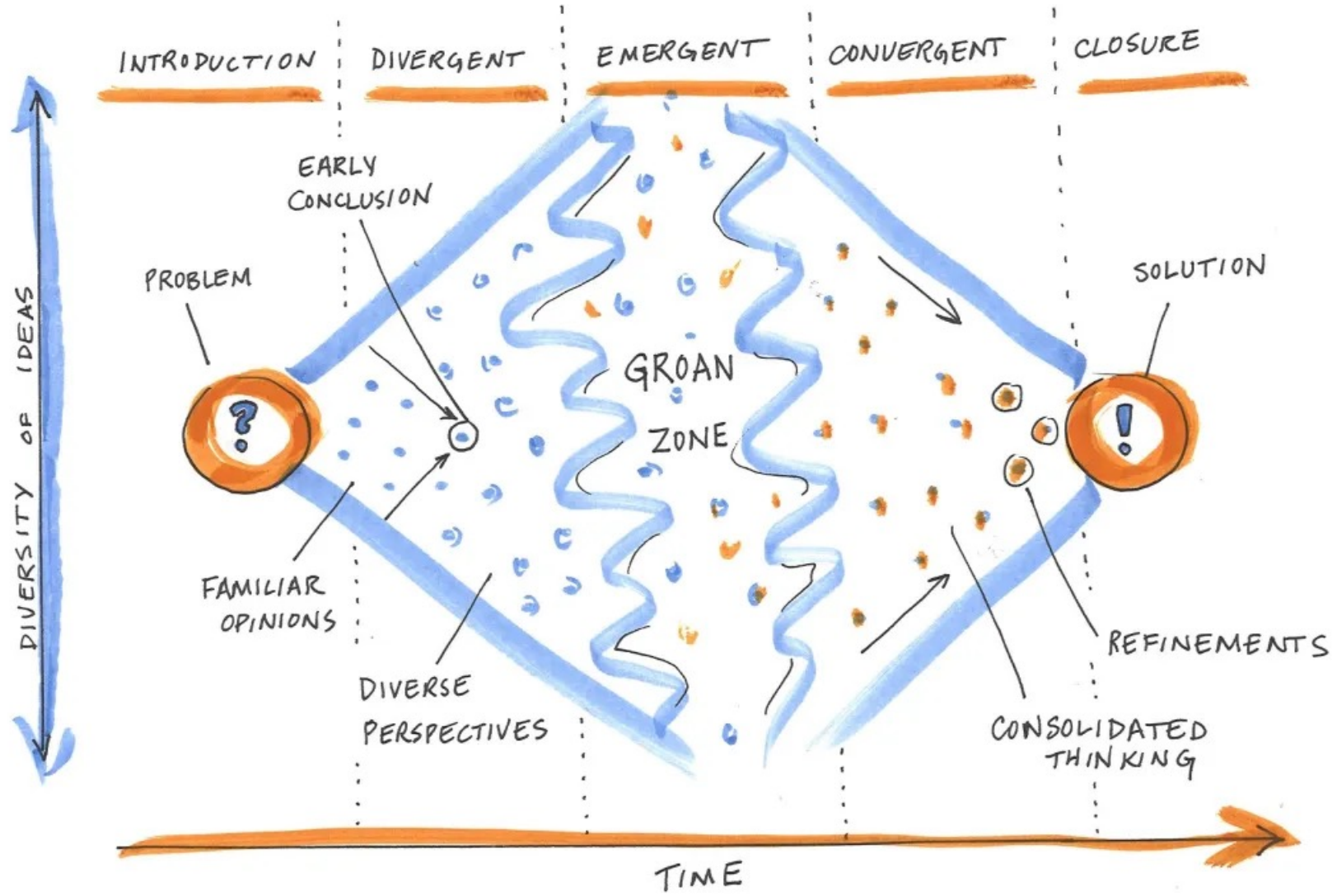
Using selection tools

Always the possibility to iterate!

Clustering individual ideas into clusters of recurring and similar ideas



SAM KANER'S DIAMOND MODEL OF PARTICIPATION



Idea selection is not just about choosing between ideas.

It is just as much (if not even more) about improving the ideas by combining them, taking features from other ideas to strengthen others and possibly getting even more ideas.



New routine

OTHER OPTIONS



SERVICES



Idea evaluation and selection

Fast, intuitive in the early process with “raw ideas”

- Dot voting
- Plus, minus, interesting (PMI)

Systematic and thorough with more developed concepts

- Idea selection matrix
- Rating ideas

PMI – plus, minus, interesting



What is good about the idea (Plus)?

Good aspects worth developing further (into concepts) or taking advantage of.



Which aspects would you need to improve (Minus)?

Negative aspects not worth developing further.



What makes the idea interesting (Interesting)?

Interesting aspects, but need more development in order to become good ideas.

Dot voting

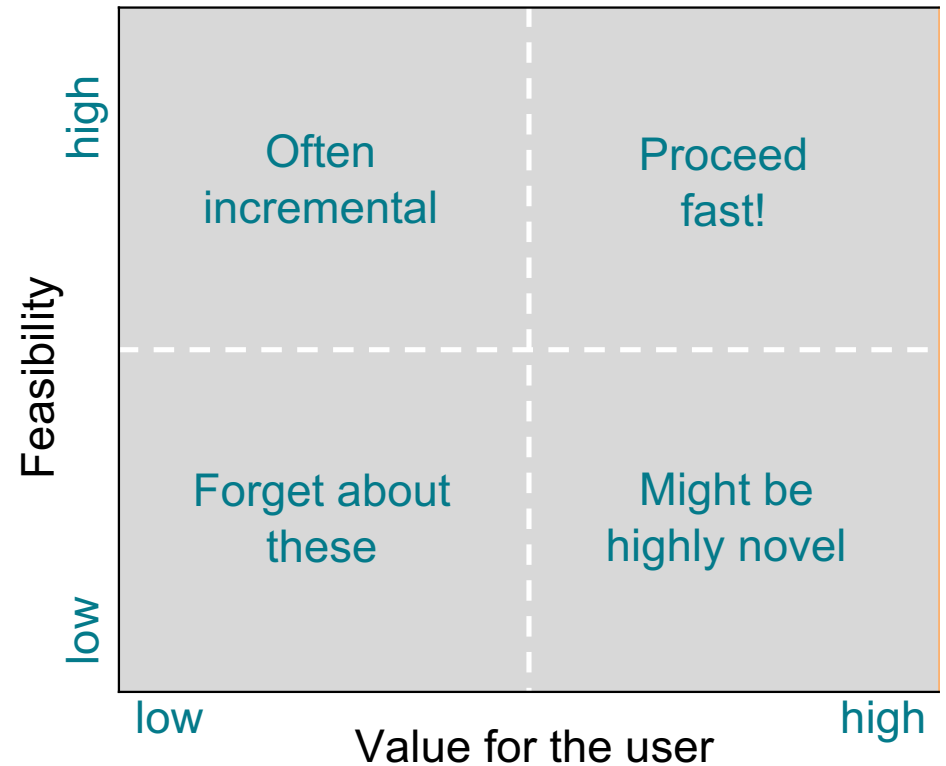
Preparations: Cluster ideas based on similarity. Agree on voting and selection criteria, e.g. five idea cluster with most votes.

1. Individually, each place three votes for ideas or clusters you think are promising solution directions.
2. As a group, using the agreed criteria choose the ideas (or a combination of ideas) to develop further.

Selection matrix

Quick evaluation of ideas against one another on two axes

Axes defined to suit the challenge and context





ORGANIZING IDEATION

Planning an ideation session

A team – who should be included, make sure the group size is not too big.

A space - workplace design has an effect on collaboration and creative outcomes
(e.g. Samani & Alavi, 2020)

A tool – Using a method increases creativity of the people and outcomes
→ More variety, more ideas, more novelty

A Question – A starting point is needed



Facilitator tasks

Facilitating ideation is to a great extent about creating a laid-back, open, and safe environment: setting a positive tone, managing group dynamics, selecting ideation techniques, and guiding the use of those.

Facilitator makes sure follow up sessions needed are scheduled, tasks are assigned and next milestones are agreed on.

Benefits of having a facilitator

Having a good facilitator can increase the productivity of the group ideating with them (Oxley et al., 1996).

Facilitator makes sure ideas are collected, categorized, and later returned to for evaluation and selection. These steps are easily skipped without a designated person.

Example structure: 60min ideation session

- **5 min** Going over the challenge
(what are we ideating solutions for)
- **5 min** Ideating alone
- **10 min** Sharing ideas
- **20 min** Ideating together and building on ideas
- **15 min** Clustering ideas and voting
- **5 min** Individually documenting thoughts on winning ideas

Materials and guidelines for a 2 hour ideation session

- <https://designfactory.aalto.fi/toolkits/>





<https://designfactory.aalto.fi/toolkits/>

TOOLKITS FOR CO-CREATION



Experimentation is a great way of learning in conditions of uncertainty – such as a pandemic! Exploring and testing new solutions can help to mitigate short-term adverse effects of crises, but also build new capabilities to leverage in the long run.

While the myth of a lone inventor seems to persist even in the present day, there is increasing evidence on how connections and networks are in fact the key to innovations. Here, we've collected some tips and tools to get you started in finding untapped potential in your networks through the interactive stakeholder mapping tool (coming soon), look at challenges from multiple angles to create diverse solution options through the ideation toolkit, and help plan how to bring initial ideas into something you can try out through the experimentation toolkit. Mix and match these free-to-use tools depending on your own needs.

Looking for inspiration for sustainable design instead? Check out the **Design+Sustainability Card Deck** [here!](#)

Toolkits in English

Työkalupakit suomeksi

For the next time!

Group assignment

Ideation assignment, DL 26.11.

Group submission through MyCo.

Individual assignment :

The quiz based on readings is open, don't leave it to last minute.





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**SEE YOU
NEXT TIME**

On 20.11.2024

A”

Aalto University
Design Factory